

Comparison of Inst

Radionuclide*	Units	EPA CERCLA Methodology – Site Specific	EPA CWA Methodology - Defaults
		Site-Specific Instream Ambient Water Quality Criteria (AWQC) Equivalent (assumes 15 fish meals/year)	CWA Guidance Defaults Instream AWQC (assumes 34 fish meals/year)
Cs-137***	pCi/L	1.2	0.19
Sr-90	pCi/L	385	64
Tc-99	pCi/L	1,883	297
U-238	pCi/L	972	214

* Most mobile and commonly detected radionuclides at Oak Ridge Reservation.

**These are example calculations only since actual radionuclide discharge limits will be a function of site specific conditions.

*** For comparison purposes, the drinking water standard (i.e., MCL) for Cs-137 is 200 pCi/L.

DIFFERENCES IN EXPOSURE ASSUMPTIONS BETWEEN DOE, EPA CWA, & EPA CERCLA

Variable	DOE Methodology		EPA CWA
	Value	Source	Value
TR (target cancer risk) unit less	1×10^{-5}	Default	1×10^{-5}
Eff (exposure frequency) days/yr	1	DOE proposed, no data to support	365
EDf (exposure duration) yr	30	No longer used CERCLA Default	70
IRFa (fish consumption rate)	170 grams/meal	Assumes a single 6- ounce meal*	22 grams/day (8 ounce meal)
FI (edible portion of fish)	0.33	DOE proposed, no data to support	1

ream Water Quality Criteria for Bear Creek

Example End of Pipe Effluent Rad Discharge Limit (assuming assimilative capacity of 3)**	Example End of Pipe Effluent Rad Discharge Limit (assuming assimilative capacity of 16)**	Current Average Discharge Measurements at the EMWMF (current landfill)	DOE Proposal
			25% DCS Value
3.6	19.2	5.05	750
1,155	6160	3.41	275
5,649	30128	171	11,000
2,916	15552	1.66	188

ction of the implemented engineering controls (size of pipe, water flow rate at end of pipe, flow rate of receiving body

WA Methodology	EPA CERCLA Methodology	
Source	Value	Source
CWA Default	1×10^{-5}	within SF's acceptable range
CWA Default	350	SF default
CWA Default	26 years	SF default
CWA Default	227 grams/meal (8 ounce meal)	SF default
CWA Default	0.5	Literature based (average fish tissue yield is 38 to 58%)